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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/801,903

Applicant(s)

RHODES ET AL.

Examiner

NITHYA JANAKIRAMAN

Art Unit

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/2008 has been entered. Claims 1-42 have been presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-10, 13, 15-27, and 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall), further in view of "Formalizing the Design, Evaluation, and Application of Interaction Techniques for Immersive Virtual Environments" (hereinafter Bowman).
2. Koenig teaches a system for designing a vehicle body using tessellated representations of components and location information (Abstract). However, Koenig fails to teach the detection and avoidance of component interference, or the having a range of locations to position a component.

3. Hall teaches the design of a vehicle HVAC air handling assembly, wherein the vehicle takes into account other vehicle systems, and determines a sufficient dimensional distance or clearance between them (see columns 7, 8).
4. Bowman teaches specifying a range of object positions and orientations (see page 48).
5. Koenig, Hall, and Bowman are analogous art because they are both related to the field of computer aided design.
6. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the interference detection of Hall with the vehicle design system of Koenig, motivated by the desire to “ensure that it is spatially compatible with a particular environment, while still complying with predetermined functional criteria” (see Hall, column 1, lines 31-34). It also would have been obvious to combine the range of additional component positions of Bowman with the vehicle design system of Koenig, because of the desire for “setting the position and orientation (and possibly other characteristics such as scale or shape) or a selected object” which is clearly desirable to one of ordinary skill in the art of computer aided design.
7. Regarding independent claim 1, Koenig, Hall and Bowman teach:
A method for generating frame designs for manufacturing a vehicle, the method comprising (*see Koenig, column 1, lines 50-61*):
(a) obtaining a specification for a plurality of components to be mounted on a frame of a vehicle (*see Hall, column 6, lines 7-15*),

(b) obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame (*Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process*) and a range of additional positions to locate the component (*Bowman, page 48, "specify a range of object positions and orientations"*) and three-dimensional data corresponding to a tessellated representation of the component (*Koenig, Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3*);

after obtaining the processing data corresponding to each of the plurality of components (*Koenig, column 3, lines 59-61; the body-in-white could necessarily not be constructed unless the processing data of the individual components was already known*);

(c) selecting a component of the plurality of components (*Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; the pass-through beam has been selected*) and setting a current position as the logical starting position in the processing data (*Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process*);

(d) determining whether the tessellated representation of the selected component located at the current position interferes (*Hall, column 4, lines 1-3 “interference checking”*) with the tessellated representation of any other components already configured to the frame (*Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3*);

(e) if an interference occurs (*Hall, column 7, lines 1-9*), setting a next position in the range of additional positions defined in the processing data as the current position for the selected component and repeating (d) (*Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, 63, 68, 70. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference. In this instance, it would necessarily include choosing the next position to place a component*);

(f) if no interference occurs (*Hall, column 7, lines 1-9; inherently, Hall can detect if no interference occurs*), configuring the selected component to the frame at the current position (*Koenig, Figure 2: If the model meets the structural requirements, the model's components are not repositioned, or modified*);

(g) repeating (d)-(f) for any remaining components of the plurality of components (*It is inherently present in Koenig that the method can be performed more than once for the remaining models*); and

(h) generating a frame design corresponding to the configured positions for each of the plurality of components (*Koenig, Figure 2, “Final Design”*).

8. Regarding claim 2, Koenig, Hall and Bowman teach:

The method as recited in claim 1, wherein determining whether the tessellated representation (see Koenig, Figure 7) of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 32-42).

9. Regarding claim 3, Koenig, Hall and Bowman teach:

The method as recited in claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component (see Hall column 7, lines 1-9).

10. Regarding claim 4, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (see Hall, column 6, lines 7-15).

11. Regarding claim 5, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (*see Hall, lines 62-67*).

12. Regarding claim 6, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to another component (*see Hall, column 8, lines 1-9*).

13. Regarding claim 7, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (*see Hall, column 7, lines 62-67*).

14. Regarding claim 8, Koenig, Hall and Bowman:

The method as recited in claim 7, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (*see Hall, column 7, lines 62-67*).

15. Regarding claim 9, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein prior to configuring the selected component to the frame, the method further comprising:
determining whether the selected component fits with any existing holes on the frame for attaching a component at the current location (*see Hall Figure 2, column 7*);

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if the selected component does fit with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference*);

if no interference occurs, configuring the selected component to the frame at the position corresponding to a matching hole (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference*).

16. Regarding claim 10, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein each of the plurality of components corresponds to plurality of pieces of geometry (*see Koenig, column 2, lines 43-56*).

17. Regarding claim 13, Koenig, Hall and Bowman:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design (*see Koenig, column 2, lines 24-34*).

18. Regarding claim 15, Koenig, Hall and Bowman:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 1 (*see Koenig, column 2, lines 42-46*).

19. Regarding claim 16, Koenig, Hall and Bowman:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 1 (*see Koenig, column 2, lines 42-46*).

20. Regarding claim 17, Koenig, Hall and Bowman:

A method for generating frame designs for manufacturing a vehicle (*see Koenig, column 1, lines 50-61*), the method comprising:

(a) obtaining a specification for the plurality of components to be mounted on a frame of a vehicle (*see Hall, column 6, lines 7-15*),

(b) obtaining processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data for each of the plurality of components includes location information corresponding to a logical starting position for attempting to locate a component on the frame (*Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with*

*the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process)* and a range of additional dimensional positions to locate the component (Koenig column 16, lines 62-65: “Several other radiator support arrangements could be configured without significant weight gain as required for variations in engine packaging, cooling requirements or styling features”; this teaching shows that a number of positions, or arrangements, are possible in the Koenig invention) and three-dimensional data corresponding to a tessellated representation of the component (Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3); after obtaining the processing data corresponding to each of the plurality of components (Koenig, column 3, lines 59-61; the body-in-white could necessarily not be constructed unless the processing data of the individual components was already known):

(c) selecting a component of the plurality of components (Koenig, column 11, lines 38-44: “Figure 13 shows the function and position of the pass-through beam”; the pass-through beam has been selected) and setting a current position as the starting position in the processing data (Koenig, column 11, lines 38-44: “Figure 13 shows the function and position of the pass-through beam”; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process);

(d) configuring a position for the selected component (Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, 63, 68, 70. This teaching, in conjunction with the interference checking of Hall teaches an iterative

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design process, which redesigns and modifies a model in order to compensate for component interference) based upon determining whether a tessellated representation of the selected component interferes (*Hall, column 4, lines 1-3 “interference checking”*) with the tessellated representation of any other components already configured to the frame;

(e) repeating (d) for any remaining components of the plurality of components (*It is inherently present in Koenig that the method can be performed more than once for the remaining models*);
and

(f) generating a frame design corresponding to the configured positions for each of the plurality of components (*Koenig, Figure 2, “Final Design”*).

21. Regarding claim 18, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein determining whether a tessellated representation (*see Koenig, Figure 7*) of the selected component interferes with the tessellated representation of any other components already configured to the frame (*see Hall, column 7, lines 1-9*) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (*see Hall, column 7, lines 32-42*).

22. Regarding claim 19, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining

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whether the selected component located at the current position is located within another configured component (*see Hall column 7, lines 1-9*).

23. Regarding claim 20, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein obtaining a specification for the plurality of components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (*see Hall, column 6, lines 7-15*).

24. Regarding claim 21, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (*see Hall, lines 62-67*).

25. Regarding claim 22, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to another component (*see Hall, column 8, lines 1-9*).

26. Regarding claim 23, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (*see Hall, column 7, lines 62-67*).

27. Regarding claim 24, Koenig, Hall and Bowman:

The method as recited in claim 23, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (*see Hall, column 7, lines 62-67*).

28. Regarding claim 25, Koenig, Hall and Bowman:

The method as recited in claim 17, further comprising configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component (*see Hall Figure 2, column 7*).

29. Regarding claim 26, Koenig, Hall and Bowman:

The method as recited in claim 25, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (*see Hall Figure 2, column 7*);
if the selected component fits with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a*

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door". *In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference*);

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference*).

30. Regarding claim 27, Koenig, Hall and Bowman:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a three-dimensional representation of the frame design (*see Koenig, column 2, lines 24-34*).

31. Regarding claim 31, Koenig, Hall and Bowman:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 17 (*see Koenig, column 2, lines 42-46*).

32. Regarding claim 32, Koenig, Hall and Bowman:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 17 (*see Koenig, column 2, lines 42-46*).

33. Regarding claim 33, Koenig, Hall and Bowman:

A computer-readable medium having computer-executable modules for generating frame designs for manufacturing a vehicle (*see Koenig, column 1, lines 50-61*), the computer-executable modules comprising:

an interface module for obtaining a specification for the plurality of components to be mounted on a frame of a vehicle and for transmitting a frame design corresponding to a configuration of the components mounted on the frame of the vehicle (*see Hall, column 6, lines 7-15*);

a processing data module for storing processing data corresponding to each of the plurality of components to be mounted on the frame of the vehicle, wherein the processing data includes location information corresponding to a logical starting position for attempting to locate a component on the frame (*Koenig, column 11, lines 38-44: "Figure 13 shows the function and position of the pass-through beam"; this teaching, in conjunction with the iterative process of Figure 2 depicts the inherent obtaining of a position, which would necessarily be a **starting** position, as other positions may be used in the modification process*) and a range of additional positions to locate the component (*Koenig column 16, lines 62-65: "Several other radiator support arrangements could be configured without significant weight gain as required for variations in engine packaging, cooling requirements or styling features"; this teaching shows that a number of positions, or arrangements, are possible in the Koenig invention*) and three-dimensional data corresponding to a tessellated representation of the component (*Koenig: Tessellation is defined as being marked with checks, squares, triangles, or the like, as clearly shown in Figure 3*); and

a configuration module for obtaining the processing data corresponding to each of the plurality of components to be mounted on the frame and, after obtaining the processing data (*Koenig, column 3, lines 59-61; the body-in-white could necessarily not be constructed unless the processing data of the individual components was already known*), configuring a location for a selected component of the plurality of components to be mounted on a frame of a vehicle based upon an interference check (*see Hall, column 4, lines 1-3, "interference check"*) corresponding to comparison of a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame (*Koenig teaches the reconfiguration of components if the model does not conform to the structural performance targets: Figure 2, 63, 68, 70. This teaching, in conjunction with the interference checking of Hall teaches an iterative design process, which redesigns and modifies a model in order to compensate for component interference*).

34. Regarding claim 34, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 33, wherein the interference check includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (*see Hall, column 7, lines 1-9; Hall, column 7, lines 32-42*).

35. Regarding claim 35, Koenig, Hall and Bowman:

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The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (*see Hall, lines 62-67*).

36. Regarding claim 36, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to another component (*see Hall, column 8, lines 1-9*).

37. Regarding claim 37, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 33, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (*see Hall, column 7, lines 62-67*).

38. Regarding claim 38, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 37, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (*see Hall, column 7, lines 62-67*).

39. Regarding claim 39, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 33, wherein the configuration module is further operable for configuring a new position for the selected component based upon

determining whether the selected component fits with any existing holes on the frame for attaching a component (*see Hall Figure 2, column 7*).

40. Regarding claim 40, Koenig, Hall and Bowman:

The computer-readable medium as recited in claim 39, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (*see Hall Figure 2, column 7*);

if the selected component fits with any existing holes on the frame for attaching a component,

determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference*);

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole (*Hall, column 5, lines 5-19, the Hall invention uses what are referred to as "inlet openings" to allow the ingress of air into the interior chamber of the HVAC unit. Lines 13-15 state, "Preferably, the openings are covered by a door". In conjunction with*

the interference checking of column 4, line 1, the inlet opening can be covered by a door because there would be no interference).

41. Claims 11, 12, 14, 28-30, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig, in view of Hall, further in view of Bowman, further in view of Hill.

42. Koenig as modified by Bowman and Hall teaches a system for designing a vehicle body using tessellated representations of components and location information (see column 1). However, Koenig as modified by Bowman and Hall fails to teach traversing a tree structure to select the next course of action, or the usage of generating a text file.

43. Hill teaches method for the design and manufacturing of vehicles using process data structures (see Hill, column 1, lines 43-49) and textual descriptions of instructions (see Hill, column 4, lines 32-35).

44. Koenig as modified by Bowman and Hall, and Hill are analogous art because they are all related to computer aided design.

45. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the system for designing a vehicle body of Koenig as modified by Bowman and Hall with the data structures and text files of Hill motivated by the desire to "indicate the assembly steps...contained within the manufacturing data structure" (see Hill, column 1), and to "provide specific instructions for personnel" (see Hill, column 4).

46. Regarding claim 11, Koenig, Hall, Bowman and Hill teach:

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The method as recited in claim 1, wherein obtaining processing data corresponding to plurality of components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

47. Regarding claim 12, Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 11, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

48. Regarding claim 14, Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

49. Regarding claim 28, Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the plurality of components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

50. Regarding claim 29, Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 17, wherein obtaining processing data corresponding to plurality of components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

51. Regarding claim 30, Koenig, Hall, Bowman and Hill teach:

The method as recited in claim 29, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

52. Regarding claim 41, Koenig, Hall, Bowman and Hill teach:

The computer-readable medium as recited in claim 33, wherein the processing module selects the processing data by traversing a tree structure (see Hill, Figure 3).

53. Regarding claim 42, Koenig, Hall, Bowman and Hill teach:

The computer-readable medium as recited in claim 41, wherein the tree structure includes two or more set of processing data for a selected component and wherein the configuration module selects a next position in the range of additional positions defined in the processing data by selecting a new set of processing data from the processing module and obtaining a next position for the component from the new set of processing data (see Hill, column 1, lines 3-49).

Response to Arguments- 35 U.S.C §101

54. Applicant's arguments with respect to claims 33-42 have been fully considered and are persuasive. The rejections of claims 33-42 have been withdrawn.

Response to Arguments-35 U.S.C §103

55. Applicant's arguments with respect to neither Koenig nor Hall disclosing "a range of additional positions" on pages 16-17 have been considered but are moot in view of the new ground(s) of rejection.

56. Applicant's arguments regarding the temporal aspect of obtaining processing data on page 17 have been fully considered but they are not persuasive. Applicant argues that, in Koenig, locations of components are obtained after the components have been positioned to a vehicle. However, Applicant has provided no support for this assumption. The Examiner respectfully asks how the model could be created without the system deciding on component locations beforehand. Rejection maintained.

57. Applicant's arguments regarding the iterative nature regarding interference checks of Koenig on pages 17-18 have been fully considered but they are not persuasive. As stated above, the Examiner is not utilizing Koenig for the purposes of interference checking, rather for the teaching of an iterative process, in order to modify and perfect a model's design. As Applicant openly admits, Koenig's iterative process tests as to whether "a particular configuration of the vehicle fails to meet performance targets". If interference is detected, for which Hall is used to modify Koenig, clearly, a particular configuration of the vehicle fails to meet performance target.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NITHYA JANAKIRAMAN whose telephone number is (571)270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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